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5 8. surface of said sample; and voltage apply means for ON-OFF applying to said sample a negative DC voltage in which the OFF period of the ON-OFF application is below 10^{-6} seconds.

10 9. A dry etching method comprising using the plasma etching processing apparatus according to claim 7 to etch an insulating film deposited on a copper layer provided on a sample under the conditions of said negative DC voltage of below 200V.

15 10. An apparatus for fabricating semiconductor devices comprising a sputtering processing chamber for depositing a metal film on a semiconductor sample by a sputtering method; and an etching processing chamber for etching an insulating film on the semiconductor sample by a dry etching method, further comprising: a plasma processing chamber for performing a plasma processing of the semiconductor sample; and exhaust gas processing equipment capable of subjecting both combustible gas and combustion buck up gas to an exhaust gas process.

20 11. The apparatus for fabricating semiconductor devices according to claim 10, further comprising gas introduction means for introducing at least three gases of NF_3 , H_2 , and O_2 into said etching processing chamber.

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